

Performance analysis of the 2014 FIFA World Cup group stage

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Abstract

This report evaluates the performances of the countries in the 2014 FIFA World Cup group stage by comparing each country's expected performances with their actual performances. We investigate the performances in the individual matches as well as aggregates per country and per region. While the sample size is small, the statistics seem to confirm the perceptions that teams from the Americas have generally performed well and exceeded expectations.

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1 Introduction

This report evaluates the performances of the countries in the 2014 FIFA World Cup group stage by comparing each country's expected performances with their actual performances. More specifically, we compare the number of points each country was expected to gain during the group stage with the number of points it actually won. This measure provides a rough estimate of how well each country performed. However, since each country played only three matches, no firm conclusions can be drawn from these numbers.

In this report, we compute the number of points a country was expected to win using the pre-match forecasts of FiveThirtyEight.¹ FiveThirtyEight uses the Soccer Power Index² to compute a probability distribution over the possible outcomes of each match. It does this by simulating each match 10,000 times using the Soccer Power Index ratings as input. This ranking is an obvious choice since it yields a better predictive performance than the official FIFA World Ranking. For example, FiveThirtyEight's forecast for the opening match between Brazil and Croatia was 88% chance that Brazil would win, 9% chance of a tie, and 3% chance that Croatia would win. This means that if Brazil and Croatia would play 10,000 matches amongst them, Brazil would win 8,800 of them, 900 would end in a tie, and Croatia would win the remaining 300 matches.

For each match and country, we compute the expected number of points as the sum of the chance of a win multiplied by three and the chance of a tie. In our example above, Brazil was expected to gain 2.73 points (i.e., $0.88 \times 3 + 0.09$) while Croatia was expected to gain only 0.18 points (i.e., $0.03 \times 3 + 0.09$). These expectations add up to only 2.91 points. The remaining 0.09 points go lost since in case of a tie only two instead of three points are divided between the two countries involved.

¹FiveThirtyEight (fivethirtyeight.com) is an influential blog operated by ESPN.

²The Soccer Power Index is a ranking of soccer countries developed by FiveThirtyEight's editor-in-chief Nate Silver.

2 Evaluation

This report evaluates the performances in the group stage at the level of regions, countries, and individual matches. The following countries represented their region in the group stage:

- **AFC (4):** Australia, Iran, Japan, and South Korea.
- **CAF (5):** Algeria, Cameroon, Ghana, Ivory Coast, and Nigeria.
- **CONCACAF (4):** Costa Rica, Honduras, Mexico, and United States.
- **CONMEBOL (6):** Argentina, Brazil, Chili, Colombia, Ecuador, and Uruguay.
- **UEFA (13):** Belgium, Bosnia and Herzegovina, Croatia, England, France, Germany, Greece, Italy, Netherlands, Portugal, Russia, Spain, and Switzerland.

2.1 Evaluation per region

We evaluate each region by comparing its actual number of points with its expected number of points. For each region, we sum both the actual number of points and the expected number of points of each of its representatives. We compute the performance percentage of a region by dividing the actual number of points by the expected number of points. Hence, regions with a performance percentage over 100% performed better than expected, while regions with a performance percentage under 100% performed worse than expected.

Table 1 shows the actual number of points, expected number of points, and performance percentage for each region. The table provides the following observations:

- The CONCACAF and CONMEBOL countries outperformed the expectations, while the CAF and AFC countries performed much worse than expected.
- Especially the four AFC countries, which only gained 3 points while 10.31 points were expected, failed to live up to the expectations. With three points collected from three ties, the AFC countries failed to win a single match.

Table 1: Actual number of points, expected number of points, and performance percentage for each region. The CONCACAF and CONMEBOL countries performed better than expected, while the CAF and AFC countries performed worse than expected.

#	Region	Points	Expected points	Performance
1	CONCACAF	18.00	12.05	149%
2	CONMEBOL	41.00	34.90	117%
3	UEFA	61.00	58.88	104%
4	CAF	12.00	15.81	76%
5	AFC	3.00	10.31	29%

2.2 Evaluation per country

We evaluate each country by comparing its actual number of points with its expected number of points. For each country, we sum both the actual number of points and the expected number of points of each of its three matches. We compute the performance percentage of a country by dividing the actual number of points by the expected number of points. Hence, countries with a performance percentage over 100% performed better than expected, while countries with a performance percentage under 100% performed worse than expected.

Table 2 shows the actual number of points, the expected number of points, and the perfor-

mance percentage for each country. The table provides the following observations:

- Mexico and Costa Rica outperformed the expectations by gaining more than twice as many points than expected. Both countries advance to the round of sixteen. Mexico finished second to Brazil in group A, while Costa Rica won group D leaving behind former world champions Uruguay, Italy, and England.
- The Netherlands, runners-up of the 2010 World Cup, performed extremely well despite the pessimistic forecasts.
- No less than eight of the ten American countries achieved a performance percentage of at least 100%.
- Having won only one point out of three matches, England could not live up to the expectations and finishes fourth to last in our ranking.

Table 2: Actual number of points, expected number of points, and performance percentage for each country. CONCACAF countries Mexico and Costa Rica gained more than twice as many points as they were expected to gain.

#	Country	Points	Expected points	Performance
1	Mexico	7.00	3.02	232%
2	Costa Rica	7.00	3.19	219%
3	Netherlands	9.00	4.52	199%
4	Switzerland	6.00	3.92	153%
5	Colombia	9.00	5.96	151%
6	Belgium	9.00	6.02	150%
7	Algeria	4.00	2.93	137%
8	Argentina	9.00	6.81	132%
9	Nigeria	4.00	3.13	128%
10	Uruguay	6.00	4.72	127%
11	Greece	4.00	3.19	125%
12	Portugal	4.00	3.39	118%
13	United States	4.00	3.42	117%
14	France	7.00	6.00	117%
15	Chili	6.00	5.21	115%
16	Germany	7.00	6.54	107%
17	Ecuador	4.00	4.00	100%
18	Croatia	3.00	3.27	92%
19	Brazil	7.00	8.20	85%
20	Italy	3.00	3.84	78%
21	Bosnia H.	3.00	4.18	72%
22	Ivory Coast	3.00	4.29	70%
23	Spain	3.00	5.32	56%
24	Russia	2.00	4.16	48%
25	Iran	1.00	2.42	41%
26	Japan	1.00	2.97	34%
27	Ghana	1.00	3.13	32%
28	South Korea	1.00	3.25	31%
29	England	1.00	4.53	22%
30	Honduras	0.00	2.42	0%
31	Australia	0.00	1.67	0%
32	Cameroon	0.00	2.33	0%

2.3 Evaluation per match

We evaluate each match by comparing the actual number of points with the expected number of points for each of both countries in that match. For each match, we compute a surprise value, which indicates how surprising the outcome of the match was. This value is computed as the sum of the differences between the actual number of points and the expected number of points for each of both countries. Hence, the higher the surprise value is, the less likely the outcome was given the expectations.

Table 3 shows the result, the distribution over the possible outcomes, the expected number of points for both countries, and the surprise value for each match. The table provides the following observations:

- Costa Rica's win over Uruguay is the most unexpected result in the group stage. According to FiveThirtyEight's forecast, Costa Rica had only 19% chance to win this match. Costa Rica's win over Italy is ranked 7th.
- Mexico's three matches are ranked in the top 17. Mexico's wins over Croatia and Cameroon are ranked 9th and 16th, while its draw against Brazil is ranked 17th.
- Italy's three matches are ranked in the top 15. Italy's win over England is ranked 6th, while their losses against Costa Rica and Uruguay are ranked 7th and 15th, respectively.
- Brazil's wins over Croatia and Cameroon are ranked second to last and last, while their draw against Mexico is ranked 17th.

Table 3: Result, distribution over the possible outcomes, expected number of points for both countries, and the surprise value for each match. The higher the surprise value is, the less likely the outcome was given the expectations.

#	Match	Result	Distribution			Expectation		Surprise
			Home	Tie	Away	Home	Away	
1	Uruguay - Costa Rica	1-3	54%	27%	19%	1.89	0.84	4.05
2	Spain - Netherlands	1-5	53%	26%	21%	1.85	0.89	3.96
3	Greece - Ivory Coast	2-1	23%	28%	49%	0.97	1.75	3.78
4	Nigeria - Bosnia H.	1-0	25%	28%	47%	1.03	1.69	3.66
5	South Korea - Algeria	2-4	45%	30%	25%	1.65	1.05	3.60
6	England - Italy	1-2	43%	29%	28%	1.58	1.13	3.45
7	Italy - Costa Rica	0-1	41%	29%	30%	1.52	1.19	3.33
8	Switzerland - Ecuador	2-1	31%	29%	40%	1.22	1.49	3.27
9	Croatia - Mexico	1-3	39%	30%	31%	1.47	1.23	3.24
10	Netherlands - Chili	2-0	33%	27%	40%	1.26	1.47	3.21
11	Uruguay - England	2-1	34%	29%	37%	1.31	1.40	3.09
12	Portugal - Ghana	2-1	35%	30%	35%	1.35	1.35	3.00
13	Spain - Chili	0-2	35%	28%	37%	1.33	1.39	2.94
14	Ghana - United States	1-2	33%	30%	37%	1.29	1.41	2.88
15	Italy - Uruguay	0-1	30%	29%	41%	1.19	1.52	2.67
16	Mexico - Cameroon	1-0	43%	30%	27%	1.59	1.11	2.52
17	Brazil - Mexico	0-0	86%	11%	3%	2.69	0.20	2.49
18	Belgium - Russia	1-0	44%	29%	27%	1.61	1.10	2.49
19	Cameroon - Croatia	0-4	26%	30%	44%	1.08	1.62	2.46
20	Ivory Coast - Japan	2-1	47%	27%	26%	1.68	1.05	2.37
21	Honduras - Ecuador	1-2	19%	37%	44%	0.94	1.69	2.25
22	Bosnia H. - Iran	3-1	51%	28%	21%	1.81	0.91	2.10
23	Honduras - Switzerland	0-3	21%	28%	51%	0.91	1.81	2.10

24	Switzerland - France	2-5	21%	26%	53%	0.89	1.85	2.04
25	Colombia - Ivory Coast	2-1	54%	26%	20%	1.88	0.86	1.98
26	Colombia - Greece	3-0	54%	27%	19%	1.89	0.84	1.95
27	Germany - Ghana	2-2	71%	19%	10%	2.32	0.49	1.83
28	Australia - Spain	0-3	22%	10%	68%	0.76	2.14	1.62
29	Argentina - Bosnia H.	2-1	62%	23%	15%	2.09	0.68	1.59
30	Germany - Portugal	4-0	63%	22%	15%	2.11	0.67	1.56
31	United States - Germany	0-1	15%	22%	63%	0.67	2.11	1.56
32	Japan - Colombia	1-4	13%	21%	66%	0.60	2.19	1.41
33	Belgium - Algeria	2-1	65%	23%	12%	2.18	0.59	1.41
34	France - Honduras	3-0	67%	21%	12%	2.22	0.57	1.35
35	South Korea - Belgium	0-1	11%	22%	67%	0.55	2.23	1.32
36	Nigeria - Argentina	2-3	11%	21%	68%	0.54	2.25	1.29
37	Ecuador - France	0-0	19%	25%	56%	0.82	1.93	1.11
38	Chili - Australia	3-1	72%	19%	9%	2.35	0.46	1.11
39	Australia - Netherlands	2-3	9%	18%	73%	0.45	2.37	1.08
40	Argentina - Iran	1-0	77%	16%	7%	2.47	0.37	0.90
41	United States - Portugal	2-2	35%	29%	36%	1.34	1.37	0.71
42	Costa Rica - England	0-0	29%	29%	42%	1.16	1.55	0.71
43	Iran - Nigeria	0-0	28%	30%	42%	1.14	1.56	0.70
44	Russia - South Korea	1-1	45%	30%	25%	1.65	1.05	0.70
45	Japan - Greece	0-0	34%	30%	36%	1.32	1.38	0.70
46	Algeria - Russia	1-1	33%	30%	37%	1.29	1.41	0.70
47	Brazil - Croatia	3-1	88%	9%	3%	2.73	0.18	0.45
48	Cameroon - Brazil	1-4	2%	8%	90%	0.14	2.78	0.36

3 Conclusion

This report evaluates the performances of the countries in the 2014 FIFA World Cup group stage by comparing each country's expected performances with their actual performances. We investigate the performances in the individual matches as well as aggregates per country and per region.

While the sample size is small, the statistics seem to confirm the perceptions that teams from the Americas have generally performed well and exceeded expectations. In particular, this is true of the performance of Mexico and Costa Rica. In contrast, teams from Africa and Asia, in aggregate, have done worse than expected. The study also suggests that European teams have performed slightly better than expected. This is despite the poor showing by teams such as Spain and England.

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